

Face

By prof. Dr. Amal Abd el Monsef

Muscles of the Face

They are mainly inserted into the skin of the face. They pull differently on the skin of the face in various emotions giving various expressions on the face so they are known as the muscles of facial expression.

1. Orbicularis oculi: Has 3 parts:

A. Orbital part:

Origin: from the orbital bone and encircle the orbit.

Insertion: into skin of eye brows.

Action: strong closure of eye.

B. Palpebral part:

Origin: medial palpebral ligament.

Insertion: lateral palpebral raphe.

Action: simple closure of eye in blinking and sleeping.

C. Lacrimal part:

Origin: lacrimal crest.

Insertion: lateral palpebral raphe.

Action: dilatation of lacrimal sac.

Nerve supply of orbicularis oculi muscle: temporal and zygomatic branches of facial nerve.

2. Buccinator:

Origin:

- Maxilla above the 3rd molar teeth.
- Ptergomandibular raphe.
- Oblique line of the mandible.

Insertion:

- Upper fibers inserted into upper lip.
- Lower fibers inserted into lower lip.
- Middle fibers decussate and are inserted into the upper and lower lips.

Action:

1. Prevent food from accumulating into the vestibule of mouth during mastication (empty the vestibule of mouth).
2. When cheeks are distended with air, the muscle contracts to blow the air (whistling).

Nerve supply: Buccal branch of facial nerve.

3. Orbicularis oris muscle.

Motor Nerve Supply of the Face

All the muscles of the face are supplied by facial nerve (VII cranial nerve).

Course & branches:

It leaves the skull through the stylomastoid foramen. It gives muscular branch to posterior belly of digastric and stylohyoid muscles. It gives also posterior auricular nerve supplying the occipital belly of occipitofrontalis muscle. The facial nerve curves and enters into the parotid gland and it is superficial to the retromandibular vein and the external carotid artery. Inside the parotid gland the facial nerve gives:

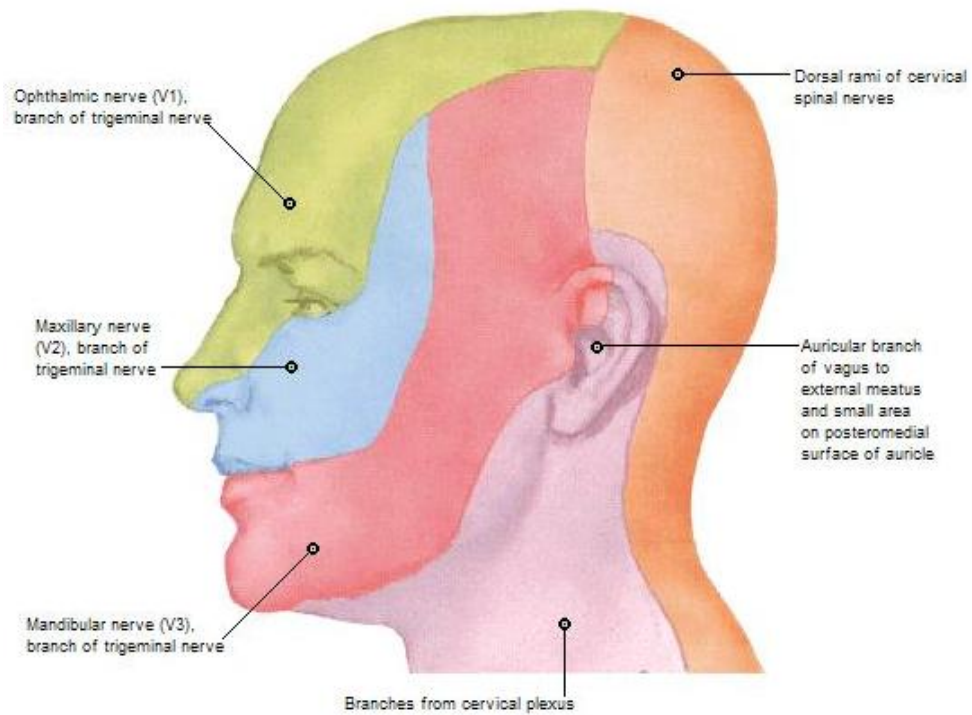
1. Temporal branch.
2. Zygomatic branch.
3. Buccal branch.
4. Mandibular branch.
5. Cervical branch: descends to the neck to supply the platysma muscle.

Applied anatomy:

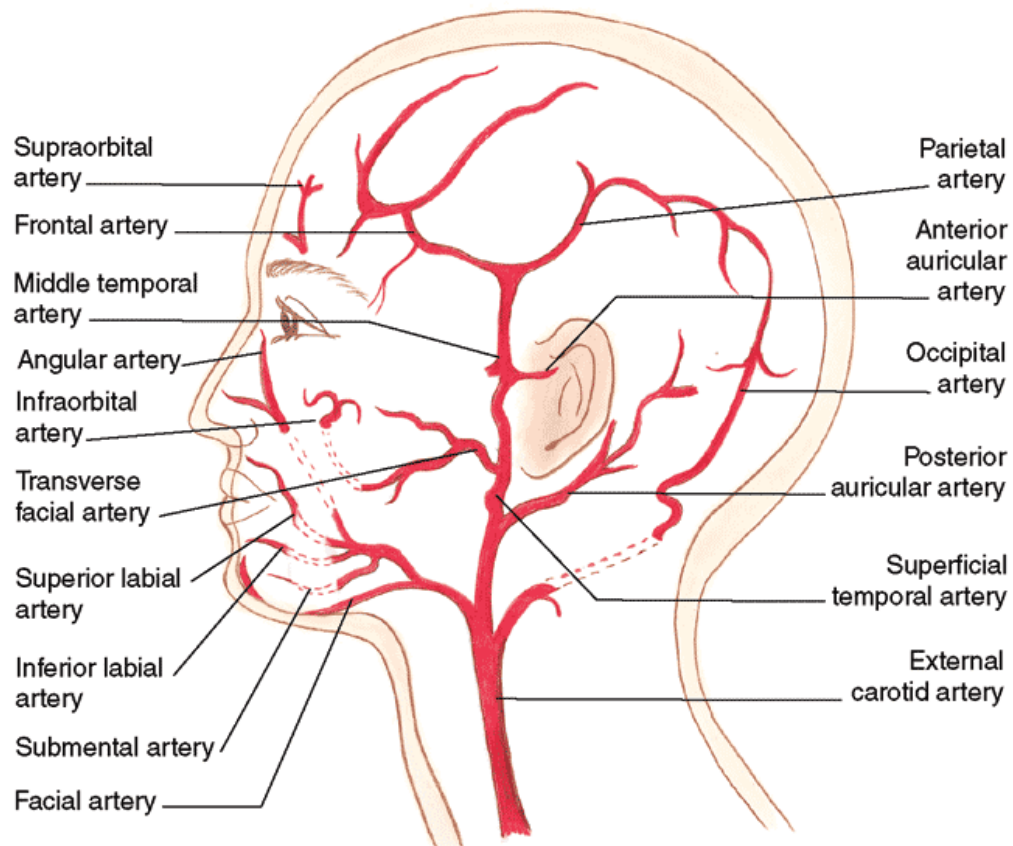
Injury to the right facial nerve leads to deviation of the mouth to the left side (healthy side).

Sensory supply of the face:

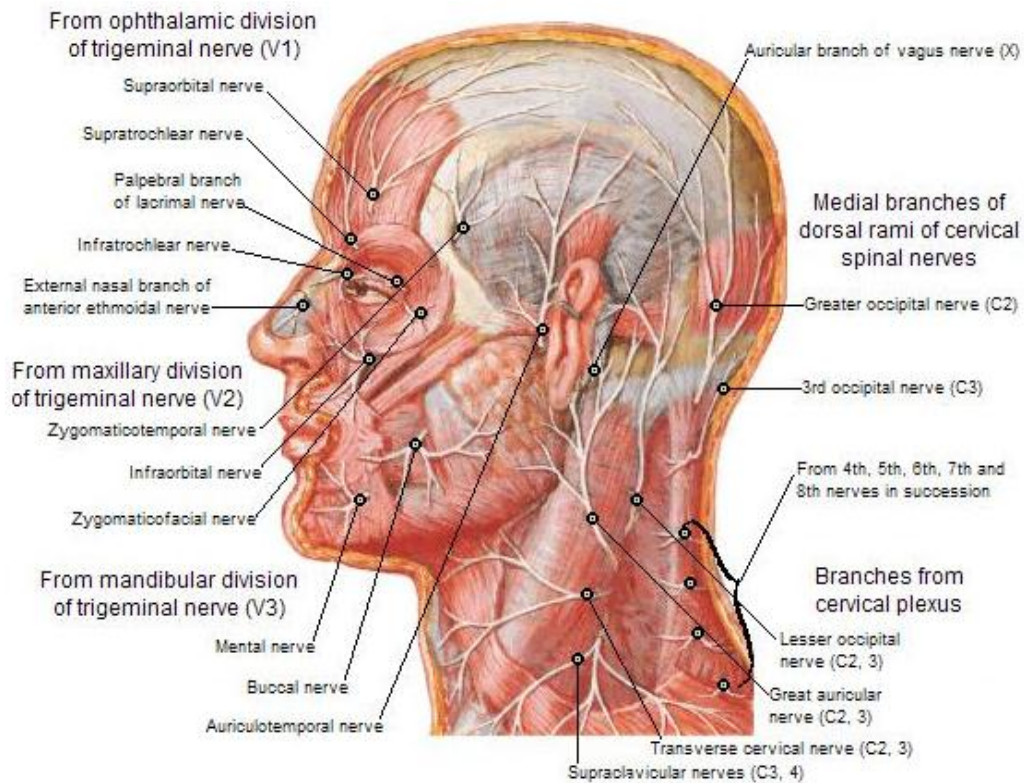
The skin of the face is supplied by branches of trigeminal nerve except the area over the lower half of the ramus of the mandible which is supplied by the great auricular nerve (branch from the cervical plexus).



Dermatomes of head and neck



Superficial arteries of face and scalp



Cutaneous nerves of head and neck

Arterial Supply of the Face

Many arteries share in the arterial supply of the face:

I. Facial artery:

- It is the main arterial supply of the face.
- It arises from the external carotid artery.
- It pierces the deep fascia at the lower border of the mandible.
- It runs in the face opposite the anterior border of masseter muscle where you can feel its pulsation.
- It reaches the angle of the mouth and ascends upwards to reach the medial angle of the eye.
- It has a tortuous course in the neck and face.
- Branches of facial artery:
 - Inferior labial → to the lower lip.
 - Superior labial → to the upper lip.
 - Lateral nasal artery and angular artery.

II. Supraorbital artery (branch from ophthalmic artery).

III. Supratrochlear artery (branch from ophthalmic artery).

IV. Infraorbital artery (branch from maxillary artery).

V. Mental artery (branch from maxillary artery).

Venous drainage of the face and scalp:

- Supratrochlear and supraorbital unite to form the anterior facial vein.
- The anterior facial vein accompanies the facial artery in the face.
- The anterior facial vein communicates with the cavernous sinus by the superior ophthalmic vein and the pterygoid plexus by the deep facial vein.
- The superficial temporal vein and maxillary vein unite to form the retromandibular vein (posterior facial vein) inside the parotid gland.
- The retromandibular vein divides inside the parotid gland into:
 - Anterior branch unites with the anterior facial vein to form the common facial vein which ends in the internal jugular vein.
 - Posterior branch unites with the posterior auricular vein to form the external jugular vein which ends in subclavian vein.
- The occipital vein drains the scalp and ends in the suboccipital plexus of veins.

Applied anatomy:

The dangerous area of the face is a triangular area between the inner canthus and the angles of the mouth. It includes the upper lip, nose and root of nose. Its clinical importance comes from its connection to the cavernous sinus via:

1. The superior ophthalmic vein connects the angular vein with the cavernous sinus.
2. The deep facial vein connects the anterior facial vein to the pterygoid plexus of vein; the latter is connected to the cavernous sinus through emissary veins.

Scalp

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It is the soft covering of the skull cap.

Attachment: highest nuchal line posteriorly, upper temporal line laterally and continuous with the skin of eye brow.

Layers of the scalp:

1. **Skin:** This is hairy.
2. **Close areolar connective tissue:** Which is adherent to the skin and to the deep muscle (occipitofrontalis). It contains hair follicles, nerves and vessels of the scalp.
3. **Aponeurosis of the occipitofrontalis muscle:** this muscle composed of, 2 frontal bellies and 2 occipital bellies. The frontal bellies originated from the aponeurosis, and inserted in the skin of the eye brow. It is supplied by temporal branch of facial nerve. It elevates the eye brow. The occipital bellies originated from the highest nuchal line and inserted in the aponeurosis. **It is supplied by posterior auricular branch of facial nerve. It fix the aponeurosis during contraction of the frontal bellies.**
4. **Loose areolar layer:** Containing small vessels. It is the dangerous layer, separation of the scalp occurs at this layer.
5. **Pericranium:** Is the periosteum of skull bones. It fuses with the sutures of the skull bones.

Arterial supply of the scalp

In front of the auricle:

1. Supratrochlear.
2. Supraorbital.
3. Superficial temporal.

Behind the auricle:

4. Posterior auricular.
5. Occipital artery.

N.B. the supratrochlear and the supraorbital arteries are branches from the internal carotid artery. The superficial temporal, posterior auricular and occipital arteries are branches from the external carotid artery. All the previously mentioned branches anastomose freely together, so the face is a site in which anastomosis between the external and internal carotid arteries occur.

Sensory nerve supply:

In front of the auricle:

1. Supratrochlear.
2. Supraorbital.
3. Zygomatico temporal.
4. Auriculotemporal nerve.

Behind the auricle:

5. Greater occipital.
6. Lesser occipital.
7. Great auricular.
8. 3rd occipital nerve.

Motor nerve supply:

Frontal bellies of occipito-frontalis are supplied by temporal branch of facial nerve.

Occipital belly of occipitofrontalis is supplied by posterior auricular nerve, branch of facial nerve. .

Lymph drainage of the scalp:

In front of the auricle:

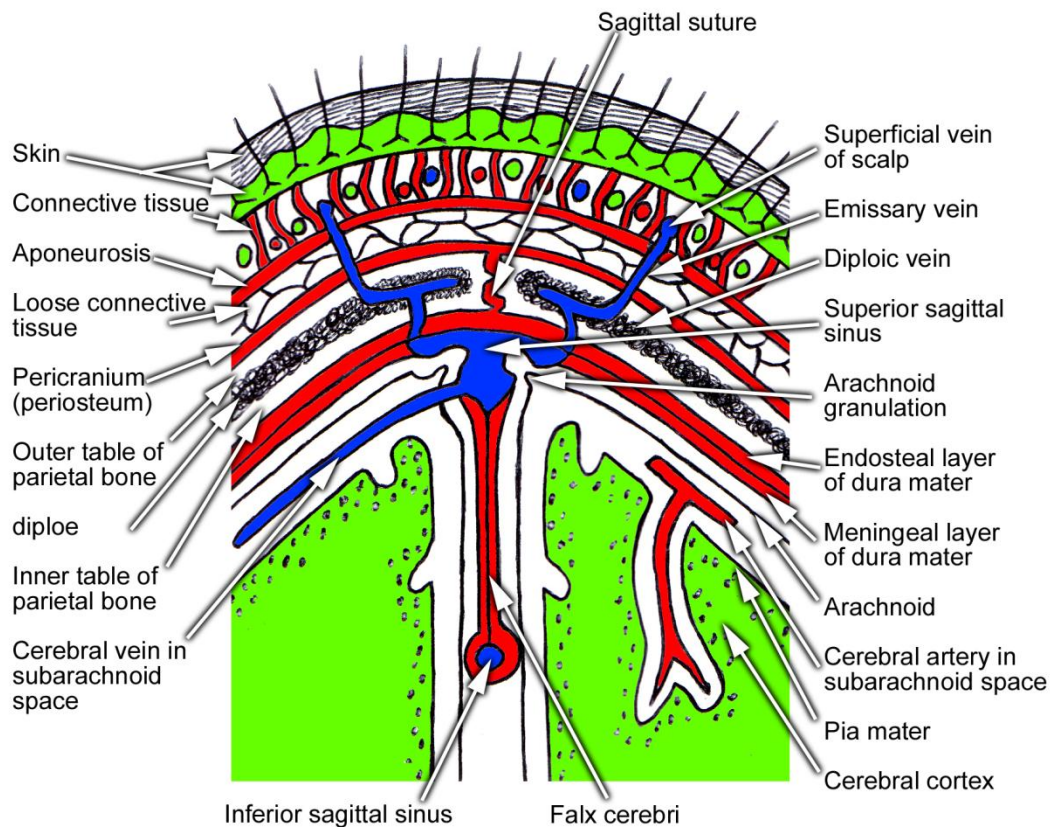
1. Parotid lymph node.
2. Submandibular lymph node.

Behind the auricle:

3. Mastoid lymph nodes
4. Occipital lymph nodes.

Applied anatomy:

The arteries supplying the scalp anatomize freely. The vessels walls present in the fibrous close areolar connective tissue are adherent to the fibers, so in scalp wound the vessels do not contract or retract. This explains severe bleeding in wounds of scalp.



Layers of the scalp

